UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,182	02/27/2004	Kazuo Sugimoto	249549US90	4597

22850 7590 08/13/2007

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
ANYIKIRE, CHIKAODILI E	
ART UNIT	**PAPER NUMBER**
2621	

NOTIFICATION DATE	DELIVERY MODE
08/13/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/787,182	SUGIMOTO ET AL.	
	Examiner	Art Unit	
	Chikaodili E. Anyikire	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20040413*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application is responsive to application number (10787182) filed on February 27, 2004. Claims 1-14 are pending and have been examined.

Information Disclosure Statement

2. Acknowledgement is made of applicant's information disclosure statement.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 7 and 14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. An acceptable form of the preamble of claim 7 reads, "A computer readable medium encoded with computer executable instructions for an image encoding, said set of computer executable instructions performing:" and an acceptable form of the preamble of claim 14 reads, "A computer readable medium encoded with computer executable instructions for an image decoding.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 7-11, and 14 rejected under 35 U.S.C. 102(b) as being anticipated by Neff et al "Very Low Bit-Rate Video Coding Based on Matching Pursuits" (provided by applicant as a part of IDS filed on April 13, 2004).

As per claim 1, Neff et al disclose image encoding apparatus (Fig 1a) comprising:

conversion means for converting a coding target block within a coding target image into conversion information (Sec III, Part D Ln 1-15);

quantization means for quantizing the conversion information and generating quantized conversion information (Sec III, Part D Ln 1-15); and

encoding means for generating compression data by encoding the quantized conversion information based on predetermined entropy encoding rules (Sec III, Part B, sub-part 3 Ln 1-15),

wherein the encoding means encodes the block size, into which the coding target image is divided, and generates compressed block size information which is included in a header information (Sec III, Part B, sub-part 3 Ln 26-35), and

the entropy encoding rules are switched according to the block size (Sec III, Part B, sub-part 1 Ln 26-33 and Sec III, Part B, sub-part 3; the prior art relates to the Figs 2 and 3 of instant application; the binary value that correlates to entropy coding also relates to the atom flag, which the prior art teaches as an atom parameter).

As per claim 2, Neff et al disclose an image encoding apparatus according to claim 1, further comprising dictionary storage means for storing a plurality of bases (Sec II Ln 1-3),

wherein the conversion means converts the coding target image into the conversion information including index information for specifying a basis used for decomposition of the coding target image among the plurality of bases (Sec II Ln 9-20), a coefficient by which the basis specified by the index information is multiplied (Sec II Ln 9-20), and positional information for specifying a position where a pattern made by multiplying the basis specified by the index information by the coefficient is restored, based on a predetermined conversion rule (Sec III, Part B, sub-part 3 Ln 1-15),

the encoding means generates the compression data including a compression code made by encoding the quantized conversion information generated by the quantization means based on a predetermined compression encoding rule (Sec III, Part B, sub-part 3 Ln 1-15), and

the encoding means executes processing in which the encoding means divides the coding target image into a plurality of blocks, extracts, for each of the plurality of blocks, the quantized conversion information the positional information of which is included in the block (Sec III, Part B, sub-part 3 and Part D), encodes, for each of the plurality of blocks, a flag for specifying existence of the quantized conversion information the positional information of which is included in the block (Sec III, Part B, sub-part 3), encodes, for each of the plurality of blocks, the number of items of quantized conversion information each of which includes the positional information included in the block (Sec III Part D Ln 1-15), converts the positional information of the quantized conversion information into inter-block positional information specifying a

relative position in the block in which the positional information is included (Sec III, Part B, sub-part 3 Ln 1-15), and

encodes the quantized conversion information, while changing size of the block, whereby the encoding means generates a plurality of compression codes, and includes a code relating to size of the block in which a bit rate of the compression code becomes at a minimum and the compression code generated at the size in the compression data (Sec III, Part B, sub-part 3 Ln 1-15).

As per claim 3, arguments analogous to those presented for claim 1 are applicable to claim 3.

As per claim 4, arguments analogous to those presented for claim 2 are applicable to claim 4.

As per claim 7, arguments analogous to those presented for claim 1 are applicable to claim 7.

As per claim 8, arguments analogous to those presented for claim 1 are applicable to claim 8.

As per claim 9, arguments analogous to those presented for claim 2 are applicable to claim 9.

As per claim 10, arguments analogous to those presented for claim 1 are applicable to claim 10.

As per claim 11 arguments analogous to those presented for claim 9 are applicable to claim 11

As per claim 14, arguments analogous to those presented for claim 8 are applicable to claim 14.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 5 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Neff et al "Very Low Bit-Rate Video Coding Based on Matching Pursuits" in view of Abe (US 5,805,737).

As per claim 5, Neff et al disclose an image encoding method according to claim 4, wherein the quantization means quantizes the coefficient included in the conversion information to generate the quantized conversion information including a quantized coefficient, when encoding the quantized conversion information in said processing (Sec III Part D Ln 1-15).

However, Neff et al does not explicitly teach the encoding means extracts a minimum absolute value among absolute values of the quantized coefficients included in a plurality of items of quantized conversion information, includes a code relating to the minimum absolute value in the compression data, converts each of the quantized coefficients into a differential value between the absolute value for each of the quantized coefficients and the minimum absolute value, includes the differential values in the compression code after encoding, and includes a positive or negative sign for each of the quantized coefficients in the compression code after encoding.

In the same field of endeavor, Abe discloses the encoding means extracts a minimum absolute value among absolute values of the quantized coefficients included in a plurality of items of quantized conversion information, includes a code relating to the minimum absolute value in the compression data, converts each of the quantized coefficients into a differential value between the absolute value for each of the quantized coefficients and the minimum absolute value, includes the differential values in the compression code after encoding, and includes a positive or negative sign for each of the quantized coefficients in the compression code after encoding (Col 6 Ln 41-56).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify invention of Neff et al with the invention of Abe.

As per claim 12, Neff et al disclose an image decoding method according to claim 11, wherein the quantized conversion information includes a quantized coefficient being made by quantizing the coefficient (Sec III Part D Ln 1-15).

However, Neff et al does not explicitly teach the compression data includes the compression code made by encoding a code relating to a minimum absolute value among absolute values of the quantized coefficients included in a plurality of items of quantized conversion information, differential values between the absolute values of the quantized coefficients and the minimum absolute value, a positive or negative sign of the quantized coefficients, and

in the decoding step (Fig 1b), the decoding means adds the minimum absolute value to each of the differential values included in the plurality of items of quantized conversion information generated by decoding the compression data with reference to a code relating to the minimum absolute value, and gives the positive or negative sign included in the quantized conversion information to an added value.

In the same field of endeavor, Abe discloses the compression data includes the compression code made by encoding a code relating to a minimum absolute value among absolute values of the quantized coefficients included in a plurality of items of quantized conversion information, differential values between the absolute values of the quantized coefficients and the minimum absolute value, a positive or negative sign of the quantized coefficients, and

in the decoding step, the decoding means adds the minimum absolute value to each of the differential values included in the plurality of items of quantized conversion

information generated by decoding the compression data with reference to a code relating to the minimum absolute value, and gives the positive or negative sign included in the quantized conversion information to an added value (Col 6 Ln 41-56).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify invention of Neff et al with the invention of Abe.

9. Claims 6 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Neff et al "Very Low Bit-Rate Video Coding Based on Matching Pursuits" in view of Hu (US 2002/0172418).

As per claim 6, Neff et al disclose an image encoding method (Fig 1a) according to claim 4, wherein, in the encoding step (Fig 1a).

However, Neff et al does not explicitly teach the encoding means uses arithmetic coding as the predetermined compression encoding rule and executes the arithmetic coding by using a predetermined probability table being different according to size of the block.

In the same field of endeavor, the encoding means uses arithmetic coding as the predetermined compression encoding rule and executes the arithmetic coding by using a predetermined probability table being different according to size of the block ([0152]).

As per claim 13, Neff et al disclose an image decoding method according to claim 11, wherein the compression code included in the compression data is generated by encoding with arithmetic coding in which a predetermined probability table being

different according to size of the block is used as the predetermined compression encoding rule, and in the decoding step, the decoding means executes inverse arithmetic coding based on the predetermined decoding rule by using the predetermined probability table according to size of blocks into which the decoding target image is divided.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chikaodili E. Anyikire whose telephone number is (571) 270-1445. The examiner can normally be reached on Monday to Friday, 7:30 am to 5 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272 - 7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CEA

Mehrdad Dastouri
MEHRDAD DASTOURI
SUPERVISORY PATENT EXAMINER
TC 2600